Research Brief

The Impact of *Crunchy Wednesdays* on Happy Meal Fruit Orders: Analysis of Sales Data in France, 2009–2013

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ABSTRACT

Objective: Beginning in September, 2010, all McDonald's restaurants in France offered free fruit with every Happy Meal sold on the first Wednesday of the month. Sales data were used to determine the impact of free fruit promotion on the proportion of regular Happy Meal fruit desserts sold.

Methods: Trend analyses examined the proportion of fruit desserts for 2009–2013. Analyses also compared fruit orders on *Crunchy Wednesdays* with other weekdays.

Results: Happy Meal fruit desserts rose from 14.5% in 2010 to 18.0% in 2011 and to 19.4% in 2013 ($P < .001$). More Happy Meal fruit desserts were ordered on *Crunchy Wednesdays* compared with other weekdays ($P < .001$). Orders of cherry tomato sides and water as a beverage on *Crunchy Wednesdays* were unaffected.

Conclusions and Implications: Based on sales transactions data across multiple years, this study provides evidence of the long-term effectiveness of menu promotions aimed at increasing children's consumption of vegetables and fruit.

Key Words: fast food, sales data, *Crunchy Wednesdays*, health promotion, Happy Meal (*J Nutr Educ Behav*. 2016;■:1-5.)

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INTRODUCTION

The World Health Organization promotes fruit and vegetable consumption among children as part of its global strategy for better diets and better health.[1,2] Economic factors can shape dietary choices through the provision of incentives and other rewards.[3-5] However, most economic interventions aimed at promoting fruit and vegetable consumption were short-lived and their durability was unclear.[3,4]

One notable exception is the US Department of Agriculture (USDA) *Fresh Fruit and Vegetable Program* (FFVP), which was launched nationally in 2008 and which continues to provide fresh fruits and vegetables as snacks to schoolchildren at no cost.[6] Evaluation studies conducted by the USDA showed that the FFVP increased children's average fruit and vegetable consumption on FFVP days by about one quarter of a cup.[7] Since September, 2010, all McDonald's restaurants in France have offered a free bag of apple slices with grapes or a pineapple spear with every Happy Meal sold on the first Wednesday of each month.[8] The promotion, which became known as *Crunchy Wednesdays*, or *Mercredis à Croquer*, added fruit to the regular Happy Meal dessert, which could also be fruit. The questions asked here were similar to those posed by the US Congress regarding FFVP evaluation in the 2008 Farm Bill.[7] First, did total fruit orders rise on *Crunchy Wednesdays* relative to control days? Second, was there evidence of a further impact on the rest of the Happy Meal, such as more orders for cherry tomatoes or plain water as a beverage?

Similar to in the US, fruit and vegetable consumption in France falls well below the national 5-A-Day goals. Based on the 2006 national food consumption data for France, 73% of adults and 95% of children failed to consume 5 daily servings of fruits and vegetables as recommended by the French National Plan for Nutrition and Health.[9]

The current study was unique in 2 respects. First, few economic interventions have had access to sales data.[10,11] Typically, sales data have been sourced from mall intercepts and consumer surveys, sometimes backed by restaurant receipts.[12-17] Second, there were few precedents for analyses based on multiple-year sales data at the national level.[12] This study was based on sales transactions for over 350 million Happy Meals sold in the 1,296 McDonald's restaurants in France between 2009 and 2013.

METHODS

Happy Meal menu choices at McDonald's France were entrée, side, beverage,

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and dessert. Item weights, provided subsequently, allow for comparison with McDonald's USA nutrition facts for popular menu items.[18] Entrées were hamburger (106 g), cheeseburger (120 g), fish filet sandwich (123 g), grilled cheese sandwich (Croque McDo) (95 g), or chicken nuggets (72 g). Side choices were fries (small 80 g), potato wedges (medium 110 g), or cherry tomatoes (60 g). Beverage options were carbonated beverages (25 cL), 100% juices (20 cL), or plain water (33 cL). The 4 dessert options were yogurt beverage (90 g); fruit compote (90 g) or apple banana puree (100 g), year-round fruit (apple slices with grapes, 80 g), and seasonal fruit (pineapple, melon, watermelon, kiwi, or orange, from 65 to 80 g). The fruit was offered in an easy-to-eat format: apple slices or kiwi fruit on a stick. A toy was provided with the meal.

The main dependent variable was the proportion of fruit (year-round or seasonal) ordered as Happy Meal desserts. The researchers also examined the potential impact of the *Crunchy Wednesdays* promotion on other components of the meal (cherry tomatoes and plain water).

Every cash register at each McDonald's restaurant sent transaction data daily to the head office in Guyancourt, France, where it was analyzed using ProClarity software (SPSS Inc., Chicago, IL, 2007). Daily sales data for all 1,296 restaurants were aggregated by day, week, and year. Statistical comparisons were made between Wednesdays and the whole week and between *Crunchy Wednesdays* and the other Wednesdays of the month. To test for statistical differences in the proportion of meals with fruit desserts as a function of time, minimum variance unbiased estimators (U statistics) were computed for each successive pair of months or years. The program used was the French version of Epi Info, a public domain suite of statistical tools made available by the Centers for Disease Control and Prevention. Additional tests were based on 1-way ANOVA with *post hoc* comparisons using SPSS (version 16.0, IBM Corp). Separate analyses were conducted to estimate the popularity of 5 seasonal fruits, provided for varying periods during 2010 and 2013.

Sales data for all Happy Meals sold in France between 2009 and 2013 were made available by the McDonald's business unit in France for further analyses by the research team.

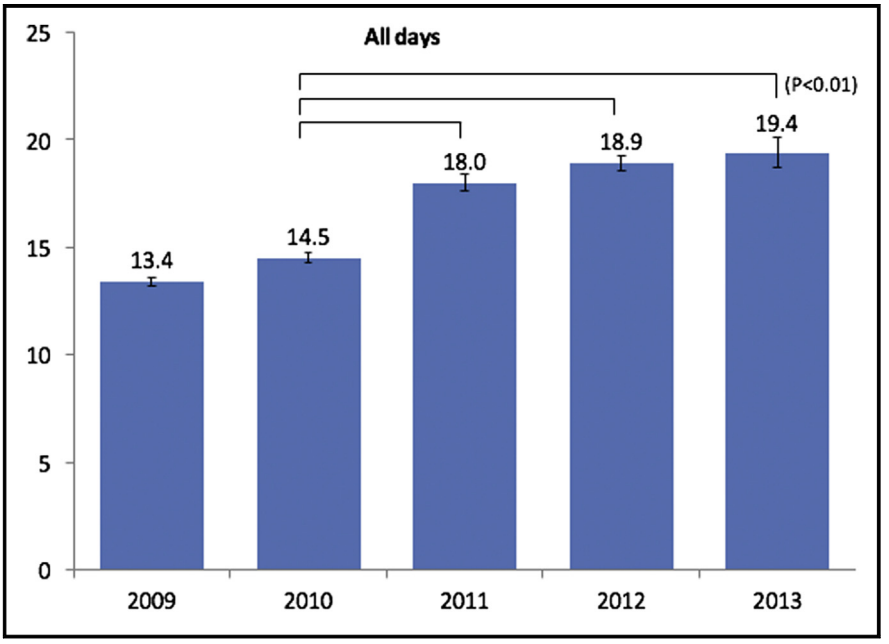

Figure 1. Percentage of Happy Meals with fruit desserts in France, 2009–2013.

RESULTS

Figure 1 shows that the percentage of Happy Meals with a fruit dessert was 13.4% in 2009 and 14.5% in 2010. The *Crunchy Wednesdays* promotion was launched in September, 2010. As shown in Figure 1, the percentage of Happy Meals with a fruit dessert rose to 18.0% in 2011, 18.9% in 2012, and 19.4% in 2013. The largest increase occurred between 2010 and 2011 ($P < .001$); proportions for later years were significantly different from 2010 ($P < .001$) but not from each other.

Figure 2 compares monthly data from 2010 and corresponding data for 2013, to demonstrate increases in fruit consumption and the seasonal variation. Data analyses by month for 2013 (January to November) showed that fruit desserts were most often ordered in the summer months of July and August.

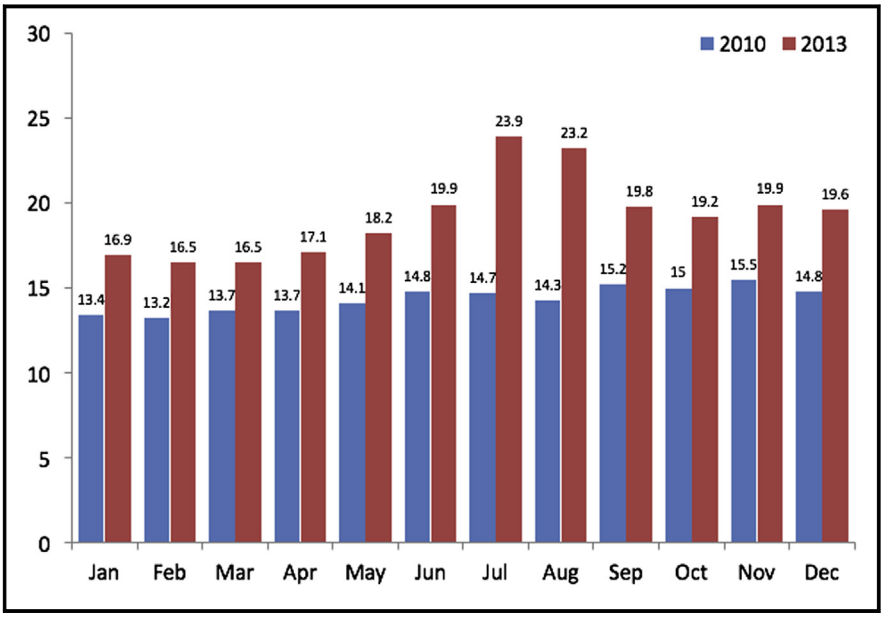

Figure 2. Effect of seasons on percentage of fruit orders as Happy Meal desserts for children. Data are for January to November, 2013, by month.

Figure 3A shows that the percentage of fruit orders for Happy Meal desserts was higher on *Crunchy Wednesdays* compared with the whole week ($P < .001$). The percentage of fruit orders was also higher on *Crunchy Wednesdays* compared with the other Wednesdays of the month (Figure 3B). Total Happy Meal sales on *Crunchy Wednesdays* relative to regular Wednesdays rose by an average of 6.4% between September, 2010 and November, 2013. The proportion of fruit desserts rose by 13.5% during that same period, which suggests that the promotion also increased other fruit consumption.

Apple slices with grapes were the most commonly ordered year-round fruit dessert, accounting for most of the fruit consumption. Melons, watermelons, and kiwis accounted for more seasonal fruit orders than did pineapples or oranges (Figure 4).

The provision of extra fruit on *Crunchy Wednesdays* did not affect other Happy Meal menu choices. Plain water, diet beverages, and 100% juices together accounted for 40% of Happy Meals. Plain drinking water was the beverage of choice for 15% of Happy Meals. Cherry tomatoes, 1 alternative to fries, accounted for <3% of sales. Those percentages were unaffected by the *Crunchy Wednesdays* program.

The durability of the intervention was analyzed using same-location, year-to-year comparisons. The biggest effects were shown soon after the 2010 launch. In 2011, almost all restaurants (97%) experienced a net increase in their Happy Meal fruit orders relative to 2010. A net increase was defined as an excess of 1% of additional sales. In 2012, 41.7% of restaurants were still growing in terms of fruit sales, whereas 53.2% were stable and 5.1% experienced a decrease relative to 2011. By 2013, the percentage of restaurants with growing fruit sales dropped to 30.9%; 60% were stable and 9.1% experienced a decrease relative to 2012 sales.

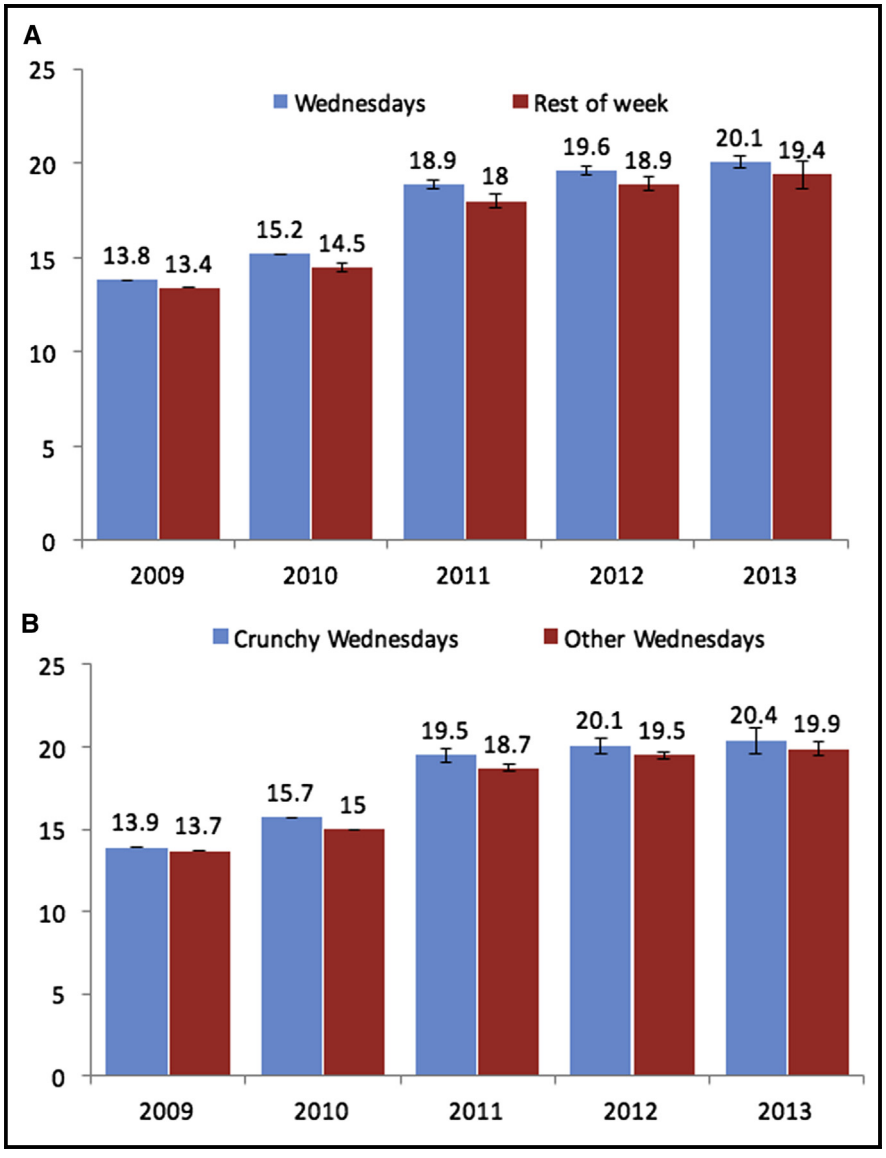

Figure 3. Percentage of Happy Meal fruit desserts on *Crunchy Wednesdays* compared with (A) other weekdays and (B) other Wednesdays of the month.

DISCUSSION

Analyzing business data can help the restaurant industry assess the viability of menu innovation programs. For example, a landmark collaboration between Starbucks and the Stanford Graduate School of Business[19] established that calorie posting in New York City in 2008 led to a 6% reduction in calories per transaction. The analyses were based on Starbucks sales transactions for only 3 cities.[19] Analyses of monthly transactions from 14 Taco Time locations in Seattle, conducted by Public Health Seattle and King County, a local health agency, showed no impact of Seattle menu-labeling regulations on product sales over 13 months.[11]

However, studies such as this are few. For the most part, efforts to evaluate the success of menu labeling in various locations in the US[11,12,14-17,20] were forced to rely on consumer surveys,[14,16,20] backed by cash register receipts[13-16] instead of sales transaction data.[10,11,19] For example, survey and selected receipt data were collected before and after the introduction of menu labeling in Seattle[11] and New York.[15,16,20] The current use of sales data is an improvement over the analysis of menu options.[21,22]

Analyses of industry sales data could help guide public health interventions. A recent study of 18,712 children's meals at 13 locations of a regional US chain showed that menu modifications affected children's food choices.[10] Fine-grained analyses of meal composition (entrée, side, beverage, and dessert), similar to the ones conducted here, showed that orders for soda and fries decreased whereas orders for vegetable sides and milk and juice as beverages increased. The authors concluded that menu modifications improved eating patterns without reducing choice or reducing restaurant revenue.[10]

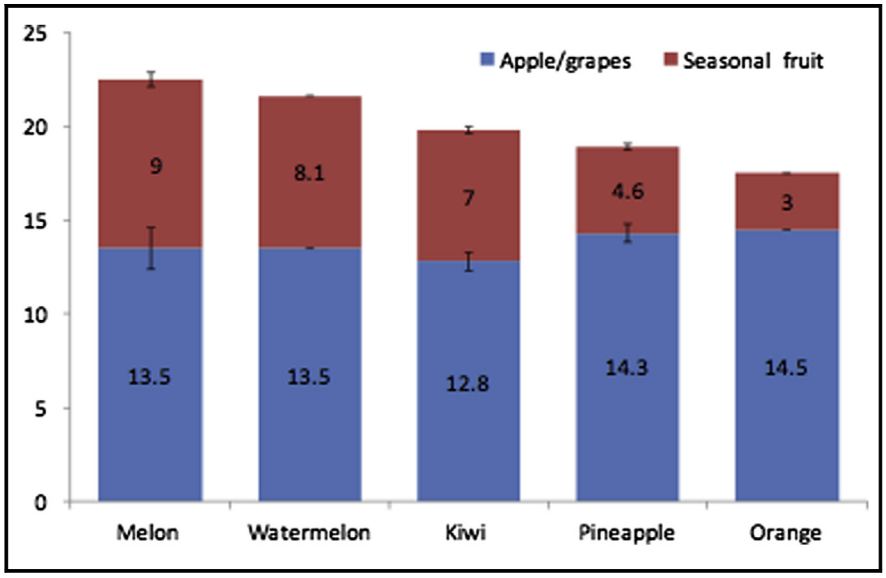

Figure 4. Year-round and seasonal fruits contribution to Happy Meal fruit desserts, September, 2010 to November, 2013.

Fewer analyses of industry sales data were conducted at the national level and over a period of several years. The current scaled-up study, which was based on more than 350 million children's meals at 1,296 locations in France, showed that more fruit orders for desserts were placed on *Crunchy Wednesdays*. This was in addition to a strong secular trend showing an increase in Happy Meal fruit desserts purchased from 2009 to 2013. Most gains in Wednesday fruit sales were evidenced in the year after the campaign launch. Although total Happy Meal sales and fruit sales both increased, other menu choices were not affected.

Scaling up menu innovations can have an impact on population health, provided that the behavioral changes can be sustained in the long term. It is an acknowledged problem that the effects of some public health promotions may not continue after the initial giveaway program is abandoned. The USDA FFVP is noteworthy for its duration. Initiated in 2002 with only 107 schools, the FFVP became a permanent program that offers free fresh fruits and vegetables in schools.[6] However, the estimated costs of a nationwide expansion of the FFVP were on the order of $4.5 billion. The FFVP now covers selected schools in all 50 states as part of the 2008 Farm Bill.[7] As reported by the USDA,[23] the pilot program increased students' awareness and preference for a variety of fruits and vegetables, particularly for less familiar kinds such as kiwis and pears. Fruit and vegetable consumption increased on FFVP days.[7]

Between the *Crunchy Wednesdays* program inception in 2010 and December, 2013, McDonald's France distributed over 9,500,000 servings of free apple slices or pineapple spears. Importantly, the promotion did not cut into but instead increased fruit orders for Happy Meal desserts. In the current study, fruit orders increased but the sales of vegetable sides and bottled water were unaffected.

Analyses of national sales data for a period of several years were a unique feature of this study and its major strength. However, its weakness was that the number of dependent variables was small and limited to the percentage of fruit desserts ordered and other menu items. More extensive analyses of Happy Meal composition may be indicated, with a focus on socioeconomic factors that could potentially influence menu choice.

IMPLICATIONS FOR RESEARCH AND PRACTICE

Analyses of restaurant industry sales data can offer new insights into the impact of menu innovations and promotions on eating habits. The *Crunchy Wednesdays* program showed how Happy Meal menu choices evolved to include more fruit for dessert. Researchers are making good use of large-scale databases from consumer panels to track purchases of foods and beverages of interest.[24,25] The restaurant industry should be encouraged to partner with researchers to determine the impact of menu innovations and menu-labeling initiatives on sales.

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CONFLICT OF INTEREST

Serge Michels and Diane Leroy are with Protéines in Paris. Adam Drewnowski is a consultant to McDonald's and has received grants, honoraria, and consulting fees from numerous food, beverage, and ingredient companies and from other commercial and nonprofit entities with an interest in nutrient density of foods, meals, and diet. Data analyses were supported by McDonalds. The sponsor had no input into statistical analyses or the presentation of the results.